## WHAT IS CLAIMED IS:

- 1. A positive-working photoresist composition which comprises, as a uniform solution in an organic solvent:
- (A) 100 parts by weight of a hydroxystyrene-based polymer having phenolic hydroxyl groups or carboxyl groups as a resinous base ingredient of which at least a part of the phenolic hydroxyl groups or carboxyl groups are substituted for the hydrogen atoms thereof by acid-dissociable groups;
- (B) from 1 to 20 parts by weight of a radiation-sensitive acid-generating compound;
- (C) from 0.1 to 25 parts by weight of a polyvinyl ether compound susceptible to crosslinking;
- (D) from 0.01 to 5 parts by weight of a carboxylic acid consisting of atoms of carbon, oxygen and hydrogen alone; and
- (E) from 0.01 to 1 part by weight of an amine compound.
- 2. The positive-working photoresist composition as claimed in claim 1 in which the acid-dissociable group in the component (A) is selected from the group consisting of alkoxyalkyl groups, tertiary alkoxycarbonyl groups, tertiary alkoxycarbonylalkyl groups, tertiary alkyl groups and cyclic ether groups.
- 3. The positive-working photoresist composition as claimed in claim 2 in which the component (A) is a combination of: (A1) a first polyhydroxystyrene resin of which a part of the phenolic hydroxyl group are substituted for the hydrogen atoms thereof by alkoxyalkyl groups; and
- (A2) a second polyhydroxystyrene resin of which a part of the phenolic hydroxyl group are substituted for the hydrogen atoms thereof by acid-dissociable groups selected from the group consisting of tertiary alkoxycarbonyl groups, tertiary alkyl groups and cyclic ether groups.
- 4. The positive-working photoresist composition as claimed in claim 3 in which the weight proportion of the first

polyhydroxystyrene resin (A1) to the second polyhydroxystyrene resin (A2) is in the range from 2:8 to 9:1.

5. The positive-working photoresist composition as claimed in claim 1 in which the polyvinyl ether compound as the component (C) is a compound represented by the general formula

in which the subscript n is a positive integer of 2, 3 or 4 and X is an n-valent organic residue.

 $X(-O-CH=CH_2)_n$ ,

- 6. The positive-working photoresist composition as claimed in claim 5 in which the n-valent organic residue denoted by X is a residue derived from a molecule of an aliphatic hydrocarbon compound or an alicyclic hydrocarbon compound by eliminating n hydrogen atoms.
- 7. The positive-working photoresist composition as claimed in claim 1 in which the carboxylic acid as the component (D) is selected from the group consisting of aliphatic carboxylic acids, alicyclic carboxylic acids and aromatic carboxylic acids.
- 8. The positive-working photoresist composition as claimed in claim 7 in which the carboxylic acid as the component (D) is maleic acid, malonic acid, dodecanoic acid or salicylic acid.
- 9. The positive-working photoresist composition as claimed in claim 1 in which the amine compound as the component (E) is a secondary or tertiary aliphatic amine compound.
- 10. The positive-working photoresist composition as claimed in claim 9 in which the amine compound as the component (E) is a secondary or tertiary alkanol amine compound.
- 11. A method for the formation of a patterned resist layer on the surface of a substrate which comprises the steps of:
- (a) coating the surface of a substrate with the positiveworking photoresist composition defined in Claim 1 followed by

drying to form a dried photoresist layer;

- (b) exposing the dried photoresist layer on the substrate surface pattern-wise to light to form a latent image of the pattern;
- (c) subjecting the photoresist layer after pattern-wise light exposure to a heat treatment;
- (d) subjecting the photoresist layer to a development treatment with an aqueous alkaline solution as a developer to form a patterned resist layer; and
- (e) subjecting the patterned resist layer to a heat treatment to effect diminution of the pattern size by thermal flow of the resist layer.
- 12. The method for the formation of a patterned resist layer as claimed in claim 11 in which the patterned resist layer exhibits a diminishing change in a dimension by increasing the temperature by an amount not exceeding 15 nm per degree centigrade of the temperature change.